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*Response
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In re Patent Application of)

Junichi HAYAKAWA)

Serial No. 09/720,028)

Filed: December 20, 2000)

For: SPEAKER DIAPHRAGM)

Art Unit: ~~2807~~ TECHNOLOGY CENTER 2800

Examiner: K. Lockett

CERTIFICATE OF MAILING

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Washington, D.C. 20231, on 6/27/02

RESPONSE

Honorable Commissioner of Patents

Washington, D.C. 20231

Sir:

The Official Action mailed March 28, 2002 has been received and its contents carefully noted. This response is filed within three months from the mailing date of the Official Action and thus it is respectfully submitted that this response is timely filed without extension of time.

Claims 1-10 are pending in the present application and claims 1 and 5 are independent. Paragraph 3 of the Official Action rejects claims 1-10 as obvious based on the combination of U.S. Patent 5,256,837 to Pak and U.S. Patent 5,647,007 to Wooderson. As stated in MPEP § 2143-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the

references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The present invention is directed to a speaker diaphragm having a plurality of projections and a plurality of recesses formed between the projections wherein "at least one surface is curved in an area from each projection to each recess" as recited in claim 1. That is, one feature of the present invention is found in the shape of the slanted area 2 of the speaker diaphragm 10 shown in Figures 1 and 2 of the present application. The speaker diaphragm of the present invention provides a significant technical advantage in that air flow can be effectively produced as illustrated in Figure 5.

It is respectfully submitted that the Official Action fails to establish a *prima facie* case of obviousness. Specifically, the prior art of record, alone or in combination, fails to teach or suggest all of the claim limitations and specifically fails to teach or suggest a speaker diaphragm wherein at least one surface is curved in an area from each projection to each recess.


The Official Action generally relies on Pak for teaching a speaker diaphragm having a plurality of projections and a plurality of recesses, but admits that Pak does not disclose the use of a surface that is curved in an area from each projection. The Official Action, however, asserts that Wooderson discloses "a speaker diaphragm having a generally cone shape, comprising a plurality of recesses on surface that is curved in an area from each projection to each recess."

Applicant respectfully disagrees. As shown in Figure 7 of Wooderson, the generally cone shaped diaphragm of Wooderson is provided with a plurality of ribs 149 in a slanted area. Thus, Wooderson appears to suggest that the ribs each make projections and areas between the adjacent ribs each make recesses. However, as seen from Fig. 7 of the reference, an outline of each of the ribs 149 is drawn in a closed loop. This means that the outline corresponds to a bottom line 5 in Fig. 4 of the present

invention and that the diaphragm of Wooderson has two bottom lines, but does not have a curved surface. In addition, a reference numeral 4 shows a peak line in Fig. 5 of the present invention. Thus, none of the references disclose or suggest that at least one surface is curved in an area from each projection 4 to each recess 5 as illustrated from "4" to "4" in Fig. 4 and as recited in claim 1 of the present invention. Since the prior art of record fails to teach or suggest at least this feature of the present invention, it is respectfully submitted that a *prima facie* case of obviousness cannot be maintained and favorable reconsideration is respectfully requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,



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